



GLOBAL SITES

[HOME](#) [COMPANY](#) [PRODUCTS](#) [NEWS/EVENTS](#) [INVESTORS](#) [SERVICES](#) [YMS](#) [FOUNDATION](#) [CAREERS](#) [CONTACT US](#)

Chip Manufacturing

Front-End Defect Inspection

Advanced Packaging

Defect Review

Metrology

5D Patterning Control Solution

In Situ Process Monitoring

Lithography

Plasma Etch

EtchTemp-SE

Implant and Wet

Instrumented Substrates

Lithography Software

Wafer Manufacturing

Reticle Manufacturing

Data Storage Media/Head
Manufacturing

LED Manufacturing

Compound Semiconductor
Manufacturing

Candela CS920

MEMS Manufacturing

Surface Profilometry and Metrology

Certified Used Equipment

eDR-52xx Series

Archer 100

A to Z Product Glossary

KLA-Tencor Launches 2830 and Puma 9500 Series, eDR-5210

Share

Wafer defect inspection and review portfolio for the 3Xnm and 2Xnm nodes

New **2830 Series broadband brightfield wafer defect inspection systems** introduce PowerBroadband™ technology to enable more repeatable capture of the most challenging defects affecting devices at the 3Xnm design rule and beyond. New **Puma 9500 Series darkfield wafer defect inspection systems** feature twice the resolution and twice the speed of their predecessors, allowing fabs to support a critical-dimension shrink without a loss of productivity.

New **eDR-5210 e-beam defect review and classification system** offers exceptional image quality and connectivity to KLA-Tencor inspection systems to accelerate identification of defect sources.

MILPITAS, Calif., July 13, 2009—Today KLA-Tencor Corporation (NASDAQ: KLAC), the world's leading supplier of process control and yield management solutions for the semiconductor and related industries, announced two new wafer inspection systems and a new electron-beam review system to address defect issues at the 3Xnm / 2Xnm nodes. The 2830 Series brightfield wafer inspection platform uses a revolutionary high-power plasma light source to illuminate defect types whose size or location made them impossible to detect repeatedly before now. The Puma 9500 Series darkfield wafer inspection platform introduces breakthrough optics and image acquisition technology that give it twice the resolution at twice the speed of its predecessor—allowing the new Puma tools to monitor more layers and more defect types at darkfield speeds. The eDR-5210 e-beam review and classification system features second-generation electromagnetic-field immersion technology, engineered to deliver extraordinary image quality and actionable defect classification results in a high productivity package. Each new tool offers substantial benefits over existing technology on its own. In addition, when the new inspection and review systems work interdependently, they can preferentially detect and report yield-relevant defects, enabling fabs to more rapidly identify and remedy complex defect issues at the 3Xnm and 2Xnm nodes.

"While many other equipment companies have been focused on scaling back programs and delaying new platforms during the downturn, KLA-Tencor has continued to invest heavily in developing next-generation products, including two innovative wafer defect inspection systems and an exceptional review tool for the 3Xnm and 2Xnm nodes," remarked Mike Kirk, Ph.D., vice president and general manager of the Wafer Inspection Group at KLA-Tencor. "Our customers are introducing complex lithography techniques, new materials and exotic structures. They are coping with additional layers and smaller process windows, and are keenly focused on value. To address these issues, our engineering teams collaborated with suppliers and customers to develop truly innovative technology for the 2830, Puma 9500 and eDR-5210 systems, giving them unprecedented capability. Each of the tools combines substantial advances in performance and throughput. Each has the flexibility for use in multiple applications—which adds considerable value in today's economic environment. Each is designed for extendibility to or from the next device generation, so that fabs can maximize re-use of their investment in capital equipment. We're confident that together the new inspection and review portfolio represents a big step forward for the industry in overall defect-management ROI: faster detection of excursions, faster resolution of difficult defect issues, and faster time to market for our customers' next-generation chips."

The 2830 Series and Puma 9500 Series wafer defect inspection systems and the eDR-5210 e-beam defect review and classification system are backed by KLA-Tencor's comprehensive service network to maintain their high performance and productivity. For more details on the individual products, please refer to the attached Technology Summaries.

Technology Summary: 2830 Series broadband brightfield defect inspection systems

At the 3Xnm/2Xnm design rule, technical issues in the defectivity realm are many and varied, beginning with the fact that yield-critical defects are generally smaller and more difficult to capture than at larger dimensions. These defects are also harder to distinguish from natural variations such as line-edge roughness or color variation—part of the sea of 'nuisance' defects that impede root-cause analysis. Systematic defects on the wafer—those that print repeatedly in the same location or within the same pattern type on the wafer—are growing in prevalence as design rules shrink, with severe impact on yield. New patterning techniques and structures at the 3Xnm/2Xnm nodes require fabs to inspect new materials and additional layers.

The new 2830 Series brightfield inspection platform introduces PowerBroadband™, a unique high-brightness light source designed to enable more repeatable capture of difficult defects, faster operation, and better discrimination between defects of interest and nuisance defects. Also equipped with a new image acquisition system featuring twice the data rate of its 2810 Series predecessor, the 2830 Series offers its markedly increased capability at production speeds.

The laser-amplified plasma light source delivers more light at every wavelength, from deep ultra-violet (DUV) through

to date, including the most challenging defects at the 3Xnm/2Xnm nodes: micro- and nano-bridges, bottom bridges, protrusions and tiny voids.

New optical modes, including the unique Broadband Directional E-Field™ technology, provide top-layer discrimination capability especially valuable for capturing defects on device layers such as STI*, gate etch, epi*, contact/via, copper CMP* and ADI*.

PowerBroadband and the new, high-speed image acquisition system produce the fastest brightfield micro-defect inspection system on the market today. Engineers can apply the extra speed to operate at higher sensitivity in production, sample the wafers more densely for tighter process control, or support a capacity expansion.

The new XP option package that we recently introduced for our 28XX Series systems uses standard IC design layout files to facilitate improved capture of yield-relevant defects and identify systematic defects that may indicate marginal features in the mask design. The XP option also can accelerate recipe creation and optimization, raising inspector productivity.

The 2830 Series is available as a complete system, and will be available as an upgrade to any of our widely installed 281X or 282X inspection systems, an option designed to allow fabs to extend their capital investment to the 3Xnm and 2Xnm nodes cost-effectively.

For more details on the 2830 Series inspection systems, please visit the product webpage: <http://www.kla-tencor.com/patterned-wafer/283x-series.html>.

Technology Summary: Puma 9500 Series darkfield defect inspection systems

Even at the leading edge, not every device layer is best served by brightfield defect inspection. Laser-imaging darkfield inspection can operate at markedly higher throughput, with sufficient defect capture rate for many applications—typically films, etch and CMP. Operation at higher throughput allows more frequent sampling of the process, so that defect excursions can be identified and remedied before additional wafers are lost. Because time to market and yield are critical to our customers' profitability, strategic use of a mix of brightfield and darkfield inspection systems throughout the fab is necessary to achieve the best return on the fab's investment in inspection equipment.

The Puma 9500 Series darkfield inspection platform introduces breakthrough enabling technology: exclusive high-NA* collection optics combined with a higher-power laser, enabling apertures, a new image acquisition system and innovative algorithms that together allow darkfield inspection to provide an increase in sensitivity-at-throughput of greater than 30%, compared to our previous-generation tool. This major advancement is designed to enable our customers to move to higher-sensitivity operation to support a critical-dimension shrink without a loss of productivity. Alternatively Puma 9500 can apply its added sensitivity-at-throughput to inspect new layers and capture smaller defects, with a speed advantage that helps fabs bring their leading-edge devices to yield more rapidly.

Combining the new optical and image-acquisition technology with a change in signal-processing architecture produces twice the resolution of the previous-generation Puma; enables the tool to better filter nuisance defects from the overall defect population during inspection; and can significantly enhance image contrast.

The advances in resolution, nuisance suppression and image contrast work together to deliver improved capture of very small particles and pattern defects such as line opens and line thinning, micro-bridges and nano-bridges, and new defects of interest for ≤3Xnm design node devices, such as protrusions and leaning poly. With double the inspection speed of the previous-generation Puma, the Puma 9500 Series platform enables higher sampling for tighter process control or higher sensitivity operation in production.

For more details on the Puma 9500 Series inspection systems, please visit the product webpage: <http://www.kla-tencor.com/patterned-wafer/puma95xxseries.html>.

Technology Summary: eDR-5210 e-beam defect review and classification system

With some of today's smallest defects represented by only a single pixel in the optical image, electron-beam review is essential to defect classification—which in turn is essential to determining the source of the defect and fixing the issue. Effective defect classification on the e-beam review tool requires reliable and efficient re-detection¹ of the defect followed by capture of a high-quality image. Classification algorithms based on the e-beam image benefit from supplemental information about the defect such as elemental analysis, the corresponding optical image from the inspection tool, and the pattern environment in which the defect is located. Automation of the process can enhance reliability and accelerate time-to-results.

The eDR-5210 e-beam defect review and classification system features several technology and architecture improvements that are designed to benefit the tool's resolution, re-detection rate, classification accuracy and productivity. Additional advances in the connectivity of the review tool to KLA-Tencor inspection systems boost the yield-relevance of the defect data results and increase the overall productivity of the inspection-review solution.

Second-generation electromagnetic-field immersion technology with simultaneous high-resolution top-down imaging and high-resolution topographic imaging enables exceptional image quality.

Design-aware capability² supplements defect data with information from standard IC design layout files—the instructions that define the pattern on the chip—to allow faster identification of systematic defect issues, which can have a devastating impact on yield.

Design-aware capability, proprietary access to optical images from KLA-Tencor inspection systems and live SEM* images together lead to faster root-cause understanding of critical patterning problems at the 3Xnm and 2Xnm nodes.

Automated review solution for bare and blanket-film wafers can provide significantly enhanced re-detection and classification of the smallest defects, by leveraging a reliable multi-point wafer alignment technique, spiral search algorithm and automated elemental analysis.

For more details on the eDR-5210 e-beam defect review and classification system, please visit the product webpage: <http://www.kla-tencor.com/patterned-wafer/eDR-5210.html>.

*Acronyms and abbreviations:

STI = shallow trench isolation

Epi = epitaxial silicon

CMP = chemical-mechanical polish

ADI = after-develop inspection

Footnotes:

1. Use of the word "re-detection" refers to the fact that the defect must be located again once the wafer has been transferred from the inspection system to the review system.
2. Available when the eDR-5210 is paired with a KLA-Tencor inspection system featuring the XP option [link to: <http://www.kla-tencor.com/patterned-wafer/xp.html>]

About KLA-Tencor:

KLA-Tencor Corporation (NASDAQ: KLAC), a leading provider of process control and yield management solutions, partners with customers around the world to develop state-of-the-art inspection and metrology technologies. These technologies serve the semiconductor, data storage, compound semiconductor, photovoltaic, and other related nanoelectronics industries. With a portfolio of industry-standard products and a team of world-class engineers and scientists, the company has created superior solutions for its customers for over 30 years. Headquartered in Milpitas, California, KLA-Tencor has dedicated customer operations and service centers around the world. Additional information may be found at www.kla-tencor.com. (KLAC-P)

Forward Looking Statements:

Statements in this press release other than historical facts, such as statements regarding the anticipated technology shift to 3Xnm and 2Xnm critical dimensions; the ability of the 2830 Series, Puma 9500 Series or eDR-5210 systems to handle challenges related to this anticipated shift; the performance standards of the tools; the extendibility of the new tools to or from other products or upgradability of our tools; and anticipated improvements in our customers' return on investment or their ability to accelerate time to market are forward-looking statements, and are subject to the Safe Harbor provisions created by the Private Securities Litigation Reform Act of 1995. These forward-looking statements are based on current information and expectations, and involve a number of risks and uncertainties. Actual results may differ materially from those projected in such statements due to various factors, including delays in the adoption of new technologies due to unanticipated cost or performance issues, the success of our continuing internal development efforts, and business and operational actions taken by our customers that could affect their returns or time to market.

###

Investor Relations:

Ed Lockwood
Sr. Director, Investor Relations
(408) 875-9529
ed.lockwood@kla-tencor.com

Media Relations:

Meggan Powers
Sr. Director, Corporate Communications
(408) 875-8733
meggan.powers@kla-tencor.com